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hepatics. Here are the type stations for certain of the rarer species, which occur nowhere else on the Island. Here too, some of the commoner species grow in abundance and in a variety of habitats and show considerable variation in consequence, as the following synonyms show:

*PILOTRICHELLA FLEXILIS* (Sw.) Jaeg. Adumb. 162. 1875-76.

*Hypnum flexile* Sw. Prod. fl. Ind. occ. 140. 1788.

*Leskea flexilis* Hedw. Spec. Musc. 234 t. 58. 1801.

*Meteorium flexilis* Mitt. Musci Austro am. 438. 1869.

*Neckera cochlearifolia* C. M. Syn. Musc. 2: 130. 1851.

*Neckera turgescens* C. M. Syn. Musc. 2: 131. 1851.

*Pilotrichella eroso-mucronata* C. M. Bull. Hb. Boiss. 5: 563. 1897.

*Pilotrichella recurvo-mucronata* C. M. Bull. Hb. Boiss. 5: 563. 1897.

*Type locality:* Jamaica.

*Habitat:* Common, pendent from branches of trees or creeping up stems of bushes, rare in fruit.

*Distribution:* W. I.: Jamaica, Cuba, Haiti, Porto Rico, Guadeloupe; C. A.: Mexico, Panama and Taboga, Guatemala, Nicaragua, Costa Rica; S. A.: Brazil, New Granada, Quito and Bolivia.

Mr. Williams and I have arrived at the following conclusions: that the smallest and most depauperate form of the species occurs in Mexico and has been called *P. cochlearifolia* (C. M.) Besch., and the stoutest and most robust form occurs in Jamaica and Mexico and Quito and New Granada and was described as *Neckera turgescens* and *P. flexilis* var. *robusta*. Of the last two of Müller's names published in 1897, *P. eroso-mucronata* is from the type regions of *P. flexilis* and the other *P. recurvo-mucronata* is not specifically distinct. Monsieur Cardot has arrived at only part of the truth when he states\* that he cannot separate *P. turgescens* from *flexilis* var. *robusta* Broth. and *P. recurvo-mucronata* (C. M.)

NEW YORK BOTANICAL GARDEN.

## FURTHER NOTES ON THE NORTH AMERICAN DISTRIBUTION OF THE GENUS USNEA

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Since the publication (Bull. Torr. Bot. Club, 37: 1-18. 1910) of my paper on the genus *Usnea*, certain specimens have come before me, some of which I was unable to see before, and others in recently published exsiccati. It seems worth while to publish, therefore, these additional notes, and bring in this way my former paper up to date.

*Usnea florida* (L.) Web. Mr. G. K. Merrill has distributed in his Lichenes Exsiccati No. 133 material collected at Sanford, Florida, which he calls "intermediate with the forma *strigosa* Ach." In my paper on page 4, I included this variety under the contingent phase (d), with the remark, "This phase is most

\*Rev. Bryol. 38: 102. 1911.

common in Mexico and Arizona plants." On the basis of Mr. Merrill's material, and of specimens in my own herbarium (Nos. 886, 888) from Jacksonville it would be well to include Florida in this statement, though Mr. Merrill's remark "intermediate" well describes the Florida specimens as they are certainly atypical of the true tropical variety.

*Usnea plicata* (L.) Web. In the same Exsiccati No. 64, Mr. Merrill distributed material from Matinicus Island, Maine, under the synonym *Usnea ceratina* Ach., and later, No. 130, he distributed material from the same locality under a new form *subplicata*. This form was given no diagnosis, and the name must be relegated to the already overburdened synonymy.

I am recording in the Bull. Torr. Bot. Club, 38: 292. 1911, the northern "dwarf condition" of this species which has been known as *Usnea barbata* var. *plicata* Fr., from the Yukon. Mr. Merrill in his Exsiccati No. 109 distributes the variety as understood by Tuckerman under the name *Usnea plicata* Ach. from Jamaica. The small specimen that I have examined of the distribution seems to me, however, more probably referable to the *trichodea* (subnaked apothecial) group, though it is slightly papillate, and in Acharius' *Usnea jamaicensis* he calls the apothecia "ambitu nudo." *Usnea jamaicensis* Ach. may prove to be the proper name. It is certainly not the boreal, dwarf *plicata* (L.) Web. referred to by Tuckerman as the variety *plicata* of Fries.

*Usnea articulata* (L.) Hoffm. Dr. A. C. Herre did not include this species in his first (1906) list of the lichens of Santa Cruz, Cal., but in the more complete work of 1910 (Proc. Wash. Acad. Sci. 12: 225. 1910) he lists it as a "not very abundant plant on the mountain forests." I have a fragment of one of his plants collected at Castle Rock Ridge, Santa Cruz (2,500 ft.) which though atypical is referable to this species. Its range should now include California, and probably Oregon and Washington, north to British Columbia.

*Usnea cavernosa* Tuck. In a recent examination of the *Alectoria* material in the herbarium of the Canadian Geological Survey kindly sent me by Prof. John Macoun, I found a specimen of this species from Frazer Falls, Murray river, Quebec, collected Aug. 11, 1905.

In Flora 71: 81. 1888, Arnold also included this species from Miquelon Island, Newfoundland, under the synonym *microcarpa* Arn.

*Usnea angulata* Ach. In my former paper I gave the northern range of this species as "about the 43rd parallel" not including the record from Lake Superior, Quebec and Ontario given in Prof. Macoun's Canadian Plants (61: 1902), as I was not able to see the material on which the record was based. The three specimens have been recently sent me by Prof. Macoun, and are typical examples of *Usnea longissima* Ach., which leaves the range of the distinctly Austral *angulata* unchanged.

During the past winter I collected atypical specimens of this species in a cedar swamp at Fitzwilliam, N. H., which is just south of the 43rd parallel.

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